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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,502	08/24/2001	Andreas Mobius	CEDE 2067	3314
321	7590	04/26/2004	EXAMINER	
SENNIGER POWERS LEAVITT AND ROEDEL ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			DRODGE, JOSEPH W	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No. 09/939,502	Applicant(s) MOBIUS ET AL.	
	Examiner Joseph W. Drodge	Art Unit 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 5, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☒ Claim(s) 46-48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3,5,9-11,20,21,26-29,34,37,40 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Hopkins patent 6,436,213.

Hopkins discloses system and method for purifying electrolyte containing liquid 5, that contains electrolytes 6 and 7 (column 2, lines 10-14), of contaminants including excess solubilizer 8 and other impurities (column 2, lines 24-28 and 55-57), the electrolyte being in contact with a 1st outer surface of a membrane separating unit assembly 9, purifying liquid being in contact with an interior surface of assembly 9 constituting solublizer solution (column 2, lines 42-45), the purifying liquid being maintained to have a relatively lower concentration of contaminants by way of being continuously treated and returned to maintain a driving force for contaminant removal (column 2, lines 36-47).

Regarding dependent claims, also disclosed are: contaminant level being maintained at or below a constant at column 2, lines 36-38 per claim 2, the purifying

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liquid being removed of contaminants at column 2, lines 55-56 per claims 5 and 34, the electrolyte moving as a result of electrolytic action and purifying liquid moving through tubes 11 and 12 per claims 9-11, there being a first volumetric region bounded by exterior of wall 9 and interior of tank wall 10, second volumetric region inside assembly 9 and porous separating membrane 101 or 201 per claims 20-21, specified membrane diameter/thickness at column 3, line 42 per claim 26, inert wall material at column 3, lines 14-15 per claim 27, tank and filter assembly being multi-sided containers per claim 28, tubes 11 and 12 being circulation devices per claim 29, there being chemical that are preparatory to the deposition at column 2, lines 12-17 per claim 37, and the solubizer acid or base being an inorganic or organic contaminant at column 2, lines 15-27 per claim 43.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4,12-15,18,19,30-33,36 and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hopkins in view of Lee patent 6,264,809.

Claims 4 and 36 differ in requiring diluting/purifying liquid, a feature shown by Lee at figure 7 and column 8, lines 3-7. It would have been obvious to one of ordinary skill in the art to have augmented the Hopkins system or method to incorporate introduction of diluting fluid, as taught by Lee, to more closely regulate contaminant/solubilizer levels.

Claims 12-15,18,19,30-33, 39,42 and 45 differ in requiring independent fluid circuits for the electrolyte and purifying liquid and accompanying pressure parameter or flow rate adjusting means, as shown by Lee at figure 7 and especially pump 175. It would also have been obvious to one of ordinary skill in the art to have modified the Hopkins system and method by incorporating the fluid circuits and pump of Lee, to have more closely controlled the concentration gradient across the membrane filtration assembly and thus the concentration of contaminants in the electrolytic deposition bath.

Claims 6-8,17,22-25,35,38,41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hopkins in view of Lee as applied to claims 1,17 and 20 above, and further in view of Christensen et al patent 3,663,403.

Claims 6-8,17,35,38,41 and 44 further differ in requiring particular purifying treatment steps of one or more of a group including filtration, ion exchange and binding/precipitation as taught by Christensen at column 7, lines 30-35, etc. It would have been further obvious to one of ordinary skill in the art to have included such purification steps in the process/system of Hopkins, so as to remove the wide variety of

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inorganic and organic contaminants present in effluent from the electrolytic bath and thus facilitate processing of defect free substrates.

Claims 22-25 also require the membrane being a hollow fiber membrane, as shown by Christensen at column 7, lines 30-35, etc. It would have been also obvious to one of ordinary skill in the art to have utilized such type membrane in the Hopkins process/system, as taught by Christensen, because the greater surface area of such membrane would result in increased flux through the membrane and less flow resistance in the electrolytic bath.

ALLOWABLE SUBJECT MATTER

ClaimS 46-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

These claims would distinguish over the prior art including Heydecke et al patent 6,379,517 in view of recitation of the electrolyte resulting from an electroless metal deposition process. Heydecke et al is representative of electroless deposition and teaches away from the claimed combination by showing removal of contaminants from electroyte with electrodialysis or ion exchange membranes that utilize electrolytic driving forces.

This Office Action could not be made Final in view of at least the new 112@2 rejection of claim 24.

Applicant's arguments with respect to claims 1-45 have been considered but are moot in view of the new ground(s) of rejection.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

April 20, 2004


JOSEPH DRODGE
PRIMARY EXAMINER